Amendments to the Specification:

Please replace paragraphs [0001], [0003], [0014]-[0016], [0028], [0029] and [0060] with the following identically numbered paragraphs:

[0001] The present invention relates in general to substrate manufacturing technologies and in particular to methods and apparatus ~~methods and apparatus~~ for inspecting contact openings in a plasma processing system.

[0003] In an exemplary plasma process, a substrate is coated with a thin film of hardened emulsion (i.e., such as a photoresist mask) prior to etching. Areas of the hardened emulsion are then selectively removed, causing components of the underlying layer to become exposed. The substrate is then placed in a plasma processing chamber on a substrate support structure comprising a mono-polar or bi-polar electrode, called a chuck or pedestal. Appropriate etchant source ~~are~~ then flow~~ed~~ into the chamber and is struck to form a plasma to etch exposed areas of the substrate.

[0014] FIG. 2B shows a somewhat idealized cross-sectional view of the layer stack of FIG. 2A, after photoresist layer 220 and a BARC layer ~~212~~ 222 is further added.

[0015] FIG. 2C shows a somewhat idealized cross-sectional view of the layer stack of FIG. 2B after photoresist layer 220 and BARC layer ~~212~~ 222 have been processed through lithography. In this example, a photoresist mask pattern is created with a set of trenches 214a-b.

[0016] FIG. 2D shows the cross-sectional view of the layer stack of FIG. 2C after trench mask layer ~~201~~ 202 has been processed in the plasma system, further extending trench 214a-b to cap layer 203.

[0028] The invention relates, in one embodiment, in a plasma processing system, to a method of inspecting a contact opening of a contact formed in a first layer of the substrate to determine whether the contact opening reaches a metal layer that is disposed below the first layer. The method includes flowing a gas mixture into a plasma reactor of the plasma processing system, the gas mixture comprising a flow of a chlorine containing gas. The method also includes striking a plasma from the gas mixture; and exposing the contact to the plasma. The method further includes detecting whether metal chloride is present ~~is~~ in the contact opening after the exposing.

[0029] The invention relates, in one embodiment, in a plasma processing system, to an apparatus for inspecting a contact opening of a contact formed in a first layer of the substrate to determine whether the contact opening reaches a metal layer that is disposed below the first layer. The apparatus includes a means of flowing a gas mixture into a plasma reactor of the plasma processing system, the gas mixture comprising a flow of a chlorine containing gas. The apparatus also includes a means of striking a plasma from the gas mixture; and a means of exposing the contact to the plasma. The apparatus further includes a means of detecting whether metal chloride is present ~~is~~ in the contact opening after the exposing.

[0060] Referring now to FIG. 4B, a simplified layer stack in which corner erosion 414 has occurred. Upon exposure to a substantial amount of chlorine containing gas, a metal chloride ~~413~~ 415 may be formed that may be readily observed with a top down SEM.